

U.S.S.N. 10/654,769

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Atty. Dkt. No. 77019

Request for Reconsideration dated November 22, 2005
Reply to Advisory Action of November 2, 2005REMARKS/ARGUMENTS

This is a reply to the Examiner's Advisory Action (form PTOL-303) mailed as part of an official action dated November 2, 2005.

Claims 1-20 remain in this application. No claim is amended or deleted in this response. Claims 21-30 were previously cancelled.

The Advisory Action dated November 2, 2005 indicated that Applicants' amendment filed September 30, 2005 would be entered for purposes of an appeal, if taken.

The Advisory Action also indicated that Applicants' reply of September 30, 2005 overcame the rejection under 35 U.S.C., first paragraph.

However, Paragraph 11 and its Continuation sheet accompanying the Advisory Action indicated that Applicants' reply of September 30, 2005 does not place the application in condition for allowance.

The Advisory Action, in this regard, stated:

The prior art as combined teaches the invention as presently claimed. It is not clear that the process limitation set forth with regard to the product claims would necessarily provide a protein product source different than that set forth in Goodnight, Jr. et al. Although it is noted that there are processing differences, it has not been demonstrated that the invention of Goodnight, Jr. does not or could not produce the same product given the range of pH treatments set forth herein.

Advisory Action of 11/2/2005, Continuation of 11.

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In reply, Applicants point out that they have published publicly available comparative experimental data demonstrating that the soy protein products of the present invention are fundamentally different and superior to those manufactured according to Goodnight's process.

Attention is drawn to Applicants' U.S. Patent Application Publication No. US 2004/0161525 A1, a partial copy, in relevant part, of which is appended as "Attachment A" (including the cover page and pages 7-8 thereof). Applicants U.S. Patent Application Publication No. US 2004/0161525 A1 is based on Applicants' co-pending U.S. Ser. No. 10/655,259, currently allowed.

The contents and experimental data set forth Applicants' U.S. Patent Application Publication No. US 2004/0161525, published August 19, 2004, were published before the final rejection issued in the instant application.

As can be confirmed at the US PTO's Public PAIR database, the application contents of U.S. Ser. No. 10/655,259 underlying and embodied in U.S. Patent Application Publication No. US 2004/0161525 A1 also are the subject of a duly executed Declaration by the current inventors (copy attached, obtained from US PTO Public PAIR records, as Exhibit B) and Example 14 as described in the executed application corresponds to Example 14 of said publication (copy of relevant excerpt attached, obtained from US PTO Public PAIR records, as Exhibit C)

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The Examiner's attention is specifically directed to Example 14 of Applicants' publication US 2004/0161525 A1.

Example 14 thereof includes an experimental comparison of soy protein material produced by a process of the present invention ("Inventive Process"), and also soy protein material produced according to the process of Goodnight's U.S. patent no. 4,420,425 ("Comparative Process 1").

As explained in [0079] of US 2004/0161525 A1, the inventive soy protein material sample made by the Inventive Process had its pH maintained at 10.0 for the duration of diafiltration through a UF membrane.

In comparison, in Comparative Process 1 representing Goodnight's process, extracted protein slurry of pH 7.5 was diafiltered through an ultrafiltration membrane without pH control, such that the pH dropped to 7.0 by the completion of the diafiltration process. Comparative Process 1 of Example 14 in US 2004/0161525 A1 thus reasonably duplicated Example 1 of the Goodnight patent of record in which the introduction pH at the UF process was 7.36 and the product pH was 7.07.

As the evidence shows in [0082] - [0084] of publication US 2004/0161525 A1, the soy product of the Inventive Process had significantly different and superior properties in terms of particle size, solubility, and water retention, as compared to the soy product made according to Goodnight's process (i.e., Comparative Process 1). These results would not have been expected from Goodnight's teachings.

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As also explained in Applicants' 2004/0161525 A1 publication, these improved and different properties favorably impact appearance, mouthfeel, and so forth, in food products containing the soy protein material manufactured according to the present invention.

Applicants submit that this factual evidence, which is currently publicly known through its publication, and also was so at the time of the final rejection, is adequate to rebut and overcome any *prima facie* case of obviousness arguably presented by the combination of Goodnight and Malzahn.

In view of the above, Applicants respectfully submit that the combination of Goodnight and Malzahn does not defeat the patentability of the present invention, and, accordingly, they request reconsideration and withdrawal of this sole remaining rejection.

In view of the above, it is believed that this application is in condition for allowance, and notice of such is respectfully requested.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

Date: November 22, 2005

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Exhibit B
Response of 11/22/05
USSN 10/654769

**DECLARATION
FOR UTILITY OR DESIGN
PATENT APPLICATION**

	Attorney Docket No.:	1410/77022
	Customer No.:	22242
	First Named Inventor:	AKASHE et al.
<input checked="" type="checkbox"/> Declaration Submitted With Initial Filing	Application Number:	10/655,259
<input type="checkbox"/> Declaration Submitted After Initial Filing	Filing Date:	September 4, 2003
	Art Unit:	1761
	Examiner Name:	N/A

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD OF DEFLAVORING SOY-DERIVED MATERIALS

(Title of Invention)

the specification of which:

- is attached hereto, or
- was filed by an authorized person on my behalf on September 4, 2003 as United States Application Number 10/655,259 or PCT International Application Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below, and I have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or any PCT international application, on this invention filed by me or my legal representatives or assigns and having a filing date before that of the application on which priority is claimed:

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<u>Prior Foreign Application Number(s)</u>	<u>Country</u>	<u>Foreign Filing Date</u>	<u>Priority Not Claimed</u>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

Additional foreign application numbers are listed on a supplemental priority data sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

<u>Provisional Application Number(s)</u>	<u>Provisional Application Filing Date</u>

Additional provisional application numbers are listed on a supplemental priority data sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code, §120, of any prior United States application(s), or under §365(c) of any PCT international application(s) designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information known by me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56, which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

<u>Prior U.S. Application Number</u>	<u>Prior PCT International Application Number</u>	<u>Filing Date of U.S. or PCT International Application</u>	<u>Patent Number (if applicable)</u>

Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet attached hereto.

As a named inventor, I hereby appoint Debbie K. Wright, Registration No. 33,817; Thomas A. Marcoux, Registration No. 29,826; Valerie Calloway, Registration No. 40,546; and the practitioners associated with Customer Number 22242, with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith, and request that all correspondence and

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telephone calls in respect to this application be directed to FITCH, EVEN, TABIN & FLANNERY, Suite 1600, 120 South LaSalle Street, Chicago, Illinois 60603-3406, Telephone No. (312) 577-7000, Facsimile No. (312) 577-7007, CUSTOMER NUMBER 22242.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made herein on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity or enforceability of the application or any patent issued thereon.

Full name of sole or one joint inventor:

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(Given names first, with Family name last)

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4/28/04

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Exhibit C
Response of 11/22/05
USSN 10/654,769

Docket 77022

METHOD OF DEFLAVORING SOY-DERIVED MATERIALS

The present application is a continuation-in-part application of United States Patent Application Serial Number 09/939,500, filed August 23, 2001, which was based on, a claimed benefit of, United States Provisional 5 Application Serial Number 60/250,228, filed on November 30, 2000, both of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

This invention relates generally to the processing of soy-derived materials for use in various food products. More particularly, the invention 10 relates to a method of deflavoring soy materials in order to make them acceptable in a wide range of foods.

In recent years, soy proteins have become widely used in food products, for the health benefits to be obtained from their use. In some applications, the taste of the soy materials is not objectionable. However, in 15 some uses, such as dairy analog products, beverages and the like, the flavors found in soy materials may prevent their ready acceptance by the consumer. Thus, in order to extend the uses of soy materials, the present inventors wanted to find a method of reducing the flavor components of soy materials. However, it was not evident that methods which had been used previously to 20 remove flavor components from other organic materials would be successful in the treating of soy materials. Organic materials, since they have complex compositions, must be tested to determine whether any given method of treating them will be satisfactory.

One example of previously employed methods to purify organic 25 materials is found in U.S. Patent 4,477,480, in which the patentees show that starch can be treated with an alkali to remove objectionable flavor components. In a commonly assigned patent, U.S. Patent 4,761,186, ultrafiltration is used to purify starch. In both cases, flavor components are removed from the starch, in the '480 patent by solubilizing the flavor 30 components so that they can be washed out of the relatively insoluble starch.

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Example 14. This examples compares the deflavored soy material prepared by the method of this invention with similar materials prepared from prior art processes (i.e., U.S. Patent 4,420,425 (issued December 14, 1983) and U.S. Patent Application Publication 2002/0098276 (published July 25, 5 2002). In each process, a defatted soy flour (Cargill, Inc.) was used as the starting material.

Inventive Process. Defatted soy flour (30 lbs.) was hydrated in 270 lbs water at 50°C. 1N NaOH solution was added slowly to the soy slurry to adjust the pH to 10.0. Extraction of soy proteins was carried for about 30 10 minutes at 50°C. At the end of the extraction, the slurry was centrifuged at 12000G using a continuous Westfalia separator (Model SC-6) with continuous de-sludging of spent material and a feed rate of about 300 L/hr. The supernatant was collected and re-centrifuged. The extracted protein slurry was then diafiltered through a UF membrane with molecular weight 15 cutoff of 10000 Daltons at about 50°C; retentate was recirculated and water was added at the same rate of permeate removal. The pH was maintained at 10.0 for the duration of diafiltration. Diafiltration continued until permeate collected was equal 2.5X the starting batch volume (i.e., 5 washes). Once diafiltration was complete, the retentate was concentrated to 10 percent 20 solids and the pH was adjusted to 6.5 with 1 percent citric acid. The product was then collected and spray dried.

Comparative Process 1 (Based on U.S. Patent 4,420,425). Defatted soy flour (30 lbs) was hydrated in 270 lbs water at ambient temperature. 1N NaOH solution was added slowly to the soy slurry to adjust the pH to 9.0. 25 Extraction of soy proteins was carried for 40 minutes at 55°C. At the end of the extraction, the slurry was centrifuged at 12000G using a continuous Westfalia separator (Model SC-6) with continuous de-sludging of spent material and a feed rate of about 300 L/hr. The supernatant was collected and re-centrifuged. After the second centrifugation, the pH had dropped to 30 7.5. The extracted protein slurry was then diafiltered through a ultrafiltration membrane with molecular weight cutoff of 30000 Daltons at about 50°C;

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retentate was recirculated and water was added at the same rate of permeate removal. The pH was not controlled during diafiltration and had dropped to 7.0 by the completion of the diafiltration. Diafiltration continued until permeate collected was equal 2.5X the starting batch volume (i.e., 5 washes).

5 Once diafiltration was complete, the retentate was concentrated to 10 percent solids and the pH was adjusted to 6.5 with 1 percent citric acid. The product was then collected and spray dried.

Comparative Process 2 (Based on U.S. Patent Application Publication 2002/0098276). Defatted soy flour (30 lbs) was hydrated in 270 lbs water at 25°C. 1N NaOH solution was added slowly to the soy slurry to adjust the pH to 9.0. Extraction of soy proteins was carried for 30 minutes. At the end of the extraction, the slurry was centrifuged at 12000G using a continuous Westfalia separator (Model SC-6) with continuous de-sludging of spent material and a feed rate of about 300 L/hr. The supernatant was collected and re-centrifuged. After the second centrifugation, the pH had dropped to 8.0. The extracted protein slurry was then diafiltered through a ultrafiltration membrane with molecular weight cutoff of 100,000 Daltons at about 25°C; retentate was recirculated and water was added at the same rate of permeate removal. The pH was not controlled during diafiltration and had dropped to 7.5 by the completion of the diafiltration. Diafiltration continued until permeate collected was equal 2.5X the starting batch volume (i.e., 5 washes). Once diafiltration was complete, the retentate was concentrated to 10 percent solids and the pH was adjusted to 6.5 with 1 percent citric acid. The product was then collected and spray dried.

25 The deflavored soy material obtained from each of the processes were evaluated. Taste was evaluated using a trained panel. Although each of the samples were acceptable (i.e., suitable reduction of soybean flavor profile), the inventive product have the best overall flavor profile. Functional properties (e.g., solubility, water retention, and the like) were also determined; the results are present in the table below:

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Sampl	Particle Size (μm)	Solubility		Water Retention (g water/g protein)
		%	Nitrogen Solubility Ind x	
5	Inventive Process	20.2	62.4	93.0
	Comparative Process 1	115.7	59.9	77.9
	Comparative Process 2	44.6	14.5	22.7

Especially for use in low viscosity food products (e.g., beverages, salad dressings, and the like), it is especially important that the solubility is high and the average particle size is small in order to provide good appearance and mouth feel. Low solubility results in sediment formation and gritty mouth feel; larger particles also results in undesirable gritty and/or chalky mouth feel.

The particle size of the material produced by the inventive process was significantly less than materials prepared from either of the other processes. Particle microstructure was also examined using microscopy. The material from the inventive process were transparent with relative thin walls. Material produced from Comparative Process 1 had both thin and thick walls whereas the material produced from Comparative Process 2 had thick walls. Thin wall particles will tend to be lighter than thick wall particles and will, therefore, tend to more easily form a suspension and to remain in suspension longer, thereby providing better mouth feel when incorporated into food products.

The inventive process provided deflavored soy materials with significantly higher solubility and water retention than either of the two comparative process.